To form the menisci, the lubricant is dragged from the contact area between the slider and disc surface along the surface of the slider (herein capillary surface), via capillary pressure. The lubricant film is dragged so that the effect of the meniscus expands, while the attractive force between lubricant molecules and the solid surface, which is quantitatively represented by the disjoining pressure of the lubricant film, is overcome by the driving force of the capillary pressure of the meniscus. The magnitude meniscus force F_m and stiction for the slider is proportional to the area of the meniscus. In particular stiction force F_s (in grams-force gf) may be estimated as follows:

$$F_s \approx 0.0005A \qquad\qquad \text{Eq. 2}$$

where:

A is the area of the meniscus in micron^2.

For example, every 2,000 μm^2 of meniscus creates 1gf of stiction. Thus, in the embodiment of the slider 72 illustrated in FIGS. 3-4, the center rail 94 is approximately 70,000 μm^2 and thus if half the center rail is flooded an estimated stiction force is approximately 17.5 gf. The increase stiction force as illustrated above affects operation of the disc drive.

As the lubricant film is thinned, it is more and more difficult for a meniscus to draw lubricant from its surrounding area to spread. Eventually, a (quasi) equilibrium state is reached where the disjoining pressure of the film equals the capillary pressure of the meniscus as follows:

$$\frac{A_H}{6\pi d^3} = \frac{\gamma}{R_e} \qquad\qquad \text{Eq. 3}$$

where:

A_H is the Hamaker constant

γ - is surface tension of the lubricant;

R_e - is the radius of the leading edge 115 of the meniscus formed between the disc and capillary surface

of the slider.

d - is the thickness of the lubricant film.

Please replace the paragraph beginning at Page 10, Line 31 and ending at Page 11, Line 12 with the following:

In particular, in the toe-dipping regime, illustrated in FIG. 7-1, bumps 116 contact lubricant film 102 developing a meniscus 106 at the interface between the bump 116 and lubricant film 102. The meniscus 106 expands until radius R_e of the meniscus is at equilibrium as defined by Eq. 3. $2R_e$ at equilibrium is less than the separation distance 120 between the slider and the disc so that the meniscus area does not extend or spread between the slider 72 and the disc surface. In the pillbox regime illustrated in FIG. 7-2, $2R_e$ at equilibrium for lubricant thickness d is similar to the separation distance 120 of the head - disc. FIGS. 7-3 and 7-4 illustrate equilibrium positions where the meniscus film envelopes the separation between the disc and slider so that the slider is essentially glued to the disc surface by the lubricant film.

Please insert the following paragraph at Page 16, Line 1:

A slider for supporting transducer elements for a data storage system includes a rigid member having opposed leading and trailing edges and opposed upper and lower surfaces. The lower surface includes a raised bearing and a trailing edge surface being adapted to support a transducer element. Landing pads extends from the raised bearing and are adapted to define a contact interface with a disc surface. At least one pressure relief trenches formed in the raised bearing proximate to a contact interface between the trailing edge of the slider and disc surface. The trench is sized to reduce capillary pressure of the meniscus along the disc surface. The slider can include a center rail and the center rail includes a pressure relief trench. The